

REMARKS

The Examiner's action dated August 1, 2003, has been received, and its contents carefully noted.

In order to advance prosecution, application claims 6 and 22 have been placed in independent form. Please note that this does not give rise to any new issue because claim 6 has simply been amended to include the subject matter of the independent claim from which it previously directly depended and claim 22 has been amended to include all of the subject matter of the independent claim from which it was previously intended to depend. By the previous amendment, the subject matter of claim 20 was incorporated into claim 16, but the dependency of claim 22 was not changed. Since the inaccurate dependency of claim 22 was not objected to, it is assumed that the Examiner treated that claim as dependant from amended claim 16.

Each of amended claims 6 and 22 defines apparatus that includes a spectrophotometric measuring unit that includes "an optical imaging system operable to locates measurements". Clearly, an optical imaging system is separate from the spectrophotometric components of the measuring unit. The spectrophotometric components employ spectral measurements to measure the thickness of at least a top layer of a wafer, while the optical imaging system produces, as its name

indicates, an optical image that indicates the location on the wafer where the thickness measurement is being performed. As shown in figure 9 of the present application, the optical imaging system is clearly separate from the spectrophotometer.

In the explanation of the rejection of these claims, the Examiner makes the statement that "the use of a spectrophotometer and imaging would be a functional equivalence." It is respectfully submitted that there is no evidentiary or logical basis for such an assertion. A spectrophotometer does not produce an image of a portion of a surface and is not capable of indicating the location at which measurements are being performed; an optical imaging system cannot provide a thickness indication.

Moreover, each of claims 6 and 20 defines structure that must include both a spectrophotometer and an optical imaging system and there is certainly no suggestion in the applied references for providing both types of devices in a single measurement station or processing machine. The apparatus according to the present invention does what neither of the applied references nor any combination of the applied references can do, which is to both perform a thickness measurement and display the exact location of that measurement. It should be noted that, even figure 4 of Birang only illustrates components of an interferometer.

Furthermore, the rejection of all of the remaining claims is again traversed.

The other independent claims distinguish over the prior art by at least the following limitations:

**Claim 1:**

*- the measurement station being so dimensioned as to be installable within the exit station of the processing machine-*

In the explanation of the rejection, it is noted that unit 12 shown in figure 7 of Okamura is an exit. However, Okamura discloses that thickness meters may be installed in auxiliary spaces 18 and 19, which are clearly separate from unit 12. After measurement, a separate transfer operation is need to bring each wafer to the exit. This is not required with the station defined in claim 1.

*-the measurement station...comprising spectrophotometric measuring units-*

Neither applied reference discloses a spectrophotometric measuring unit. Okamura broadly discloses thickness meters for measuring the thickness of the semi-conductor wafer, which cannot be achieved with a spectrophotometric measuring unit. Birang only discloses a technique that utilizes interferometric thickness measurements, which are different from spectrophotometric measurements. Since

neither reference discloses a spectrophotometric measuring unit, and the prior art relied upon does not teach that spectrophotometric measuring units can be compared to interferometric thickness measurement devices, the explanation of the rejection does not properly establish that this claim limitation would be obvious. It is well established that every limitation in a claim must be considered and a prior art rejection must be based on prior art disclosing every claim element. See *Ex parte Kaiser*, 194 U.S.P.Q. 47 (Bd. Of App, 1975) and decisions cited therein.

**Claim 15:**

*-said measurement station being associated with the exit station of the processing machine-*

As noted above, Okamura only discloses the provision of a measurement device in an auxiliary space adjacent to unit 12.

*-said measurement station having...a footprint in at least one dimension of about a size of the wafer's diameter*

Neither reference discloses a measurement station having such dimensions. Even though, as stated in support of the rejection, a measuring station could accommodate a workpiece, this is not comparable to a measurement station having a size corresponding to the workpiece diameter. A

measuring station that accommodates a workpiece could easily be larger in all dimensions than the workpiece.

**Claim 16:**

*-the optical measurement station being associated with an exit station of the processing machine-*

As noted above, Okamura does not disclose a measurement station associated with an exit station.

*-the optical measurement station...comprising a spectrophotometric measuring unit-*

Please see the comment above relative to claim 1.

**Claim 32:**

*-transferring the processed wafer...to a holding unit of a measurement station located in said exit station-*

As noted above, Okamura does not disclose a measurement station located in an exit station.

*-applying spectrophotometric measurements to the processed wafer...-*

Please see the comment above relative to claim 1.

**Claim 33:**

*-transferring the processed wafer...to a holding unit of a measurement station located in said exit station-*

See the comment above relative to claim 32.

Appln. No. 09/898,467  
Amd. dated November 3, 2003  
Reply to Office Action of August 1, 2003

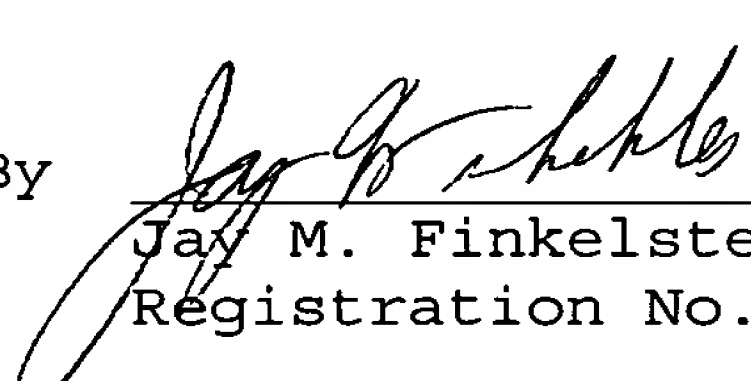
In view of the foregoing, it is submitted that all of the pending claims, and particularly claims 6 and 22, distinguish patentably over any reasonable combination of the teachings of the applied references and it is therefore asked that the prior art rejections be reconsidered and withdrawn, that all of the pending claims be allowed and that the application be found in allowable condition.

If the above amendment should not now place the application in condition for allowance, the Examiner is invited to call undersigned counsel to resolve any remaining issues.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.  
Attorneys for Applicant

By

  
Jay M. Finkelstein  
Registration No. 21,082

JMF:mch  
Telephone No.: (202) 628-5197  
Facsimile No.: (202) 737-3528  
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